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REMARKS

Applicant respectfully requests reconsideration and allowance of the subject application. No claims have been canceled. Claims 1-57 are pending, of which claims 20, and 37-38 have been amended to overcome a rejection under 35 USC § 101.

Replacement Drawings

Applicant submits herewith a complete replacement set of formal drawings (sheets 1-4) to comply with the examiners objection.

35 U.S.C. §101 Claim Rejections

Claims 20, and 37-38 are rejected under 35 USC § 101 as being directed to non-statutory subject matter, specifically non-statutory “computer readable medium” as noted by the Office (*Office Action*, p. 3). The Office argues that lines 23 page 31 to line 8 page 32 of the subject application defines the claimed computer readable medium “as including non-statutory media such as carrier wave, RF, infrared.” The Office further argues that the non-statutory media is “incapable of being touched or perceived absent the statutory medium through which they are conveyed.” Applicant respectfully disagrees with the Office’s argument. Nevertheless, in the interest of advancing the prosecution of these claims, Applicant has amended claims 20, and 37-38 to recite “A tangible computer-readable medium...” As such, claims 20, and 37-38 are allowable. Applicant respectfully requests that the 35 USC § 101 rejection be withdrawn.

1 35 U.S.C. §103 Claim Rejections

2 A. Claims 1-13, 15, 20-32, 34, 37-43, 46-51, and 54 are rejected under
3 35 USC § 103(a) for obviousness over US Patent No. 5,799,173 to Gossler et al.
4 (hereinafter, "Gossler"), in view of US Patent No. 6,728,748 to Mangipudi et al.
5 (hereinafter, "Mangipudi") (*Office Action*, p. 2).

6 B. Claims 14, 16-19, 33, 35-36, 44-45, 52-53, and 55-57 are rejected
7 under 35 USC § 103(a) for obviousness over Gossler in view of Mangipudi and
8 further in view of US Patent No. 6,321,263 to Luzzi et al. (hereinafter, "Luzzi")
9 (*Office Action*, p. 6). Applicant respectfully traverses the rejections.

10
11 Applicant submits that the Office has failed to establish a *prima facie* case
12 of obviousness in rejecting claims 1-57, and Applicant respectfully traverses the
13 rejections.

14
15 Claim 1 recites a method comprising:

16 dynamically determining present members of a load-balancing cluster
17 which includes nodes and a node manager; and
18 monitoring application-layer availability of one or more members of the
19 cluster, the monitoring being performed by one or more clients outside of the
20 cluster which are communicatively linked to the node manager in the cluster, such
21 that the monitoring is from a client perspective to detect an error that may impact
22 the application-layer availability as it appears to the one or more clients from
23 outside of the cluster.

24 Gossler and/or Mangipudi do not teach or suggest the combination of
25 feature(s) recited in claim 1. For example, Gossler and/or Mangipudi do not teach
or suggest "dynamically determining present members of a load-balancing cluster

1 which includes nodes and a node manager” and “monitoring application-layer
2 availability of one or more members of the cluster, the monitoring being
3 performed by one or more clients outside of the cluster which are
4 communicatively linked to the node manager in the cluster, such that the
5 monitoring is from a client perspective to detect an error that may impact the
6 application-layer availability as it appears to the one or more clients from outside
7 of the cluster”, as recited in claim 1.

8 To the contrary, Gossler pertains generally to dynamic workload balancing.
9 Gossler describes a technology for dynamically controlling the number of servers
10 in a transaction system comprising at least one service unit for processing service
11 requests (*Gossler*, Abstract). Each service unit comprises a queue for receiving
12 and queuing the incoming service requests and a plurality of servers for executing
13 the service requests (*Gossler*, col. 2 lines 55-60). A queuing monitor monitors and
14 controls the servers for each one of the service units of the service point (*Gossler*,
15 col. 3 lines 10 – 21). Further, the queuing monitor provides a dynamic workload
16 balancing method to employ an optimized number of servers for each service unit
17 to be monitored (*Gossler*, col. 4 lines 41-43).

18 The Office cites Gossler for teaching a method comprising determining
19 present members of a load-balancing cluster. The Office cited col. 4 lines 40-43
20 of Gossler, which is reproduced here for convenience:

21 **As to claim 1**, Gossler teaches a method comprising determining present
22 members (servers, line 42 column 4) of a load-balancing cluster (dynamic workload
23 balancing method provided by the queuing monitor 85 or any other queuing monitor
24 order to employ an optimized number of servers for each service unit to be monitored,
25 lines 40-43 column 4);

1 Applicant disagrees because Gossler neither teaches nor suggests there
2 determining present members of a load-balanced cluster. Further, Gossler is only
3 directed to a queuing monitor using a dynamic workload balancing method to
4 employ an optimized number of servers for each service unit to be monitored.
5 However, the Applicant's claims recite "dynamically determining present
6 members of a load-balancing cluster which includes nodes and a node manager"
7 and "monitoring application-layer availability of one or more members of the
8 cluster, the monitoring being performed by one or more clients outside of the
9 cluster which are communicatively linked to the node manager in the cluster, such
10 that the monitoring is from a client perspective to detect an error that may impact
11 the application-layer availability as it appears to the one or more clients from
12 outside of the cluster."

13 In addition to the foregoing, the Office recognizes that Gossler fails to
14 disclose "dynamically determining present members of a load-balancing cluster
15 which includes nodes and a node manager" and "monitoring application-layer
16 availability of one or more members of the cluster, the monitoring being
17 performed by one or more clients outside of the cluster which are
18 communicatively linked to the node manager in the cluster, such that the
19 monitoring is from a client perspective to detect an error that may impact the
20 application-layer availability as it appears to the one or more clients from outside
21 of the cluster." The Office then relies on Mangipudi as curing the deficiencies of
22 Gossler (*Office Action*, p. 4).

23 Mangipudi pertains generally to a method and apparatus for policy based
24 class of service and adaptive service level management within the context of an
25

1 internet and intranet. Mangipudi describes a technology which facilitates
2 categorization and routing of Web traffic based on Class of Service (COS)
3 (*Mangipudi*, Abstract). Mangipudi describes that host computers can be grouped
4 into different clusters (or classes) to facilitate provision of differentiated services.
5 One of these host computers, referred to as the routing host 200, includes a policy
6 engine 210, and is capable of receiving requests from client devices 202
7 (*Mangipudi*, col. 9 lines 1-6). An incoming request from a client device 202 is
8 received by the routing host 200 which then assigns a class to the request
9 (*Mangipudi*, col. 9 lines 20-25). The policy engine 210 in conjunction with the
10 routing host 200 then distributes the incoming traffic to the most available server
11 206 for that class (*Mangipudi*, col. 9 lines 20-25).

12 The Office cites col. 4 lines 28-65 of Mangipudi as teaching “a system of
13 load-balancing which includes nodes and a node manager where the application
14 layer of the servers and their availability are dynamically determined and
15 monitored from a routing host located outside of the cluster.” The Office further
16 argues that “the monitoring being performed by the routing host outside of the
17 cluster which is communicatively linked to the node manager in the cluster, such
18 that the monitoring is from a client perspective to detect an error that may impact
19 the application-layer availability as it appears to the routing host from outside of
20 the cluster.” The Office compares an intelligent agent of Mangipudi to
21 Applicants’ node manager 110, and compares routing host 200 of Mangipudi to
22 Applicants’ one or more clients 132-138 (*Office Action*, p. 4-5; *Mangipudi* col. 4
23 lines 28-65 and Figs. 2-3).

1 Applicant submits that Mangipudi fails to cure the deficiencies of Gossler.
2 Mangipudi does not describe “dynamically determining present members of a
3 load-balancing cluster which includes nodes and a node manager.” Mangipudi
4 describes that an intelligent agent is installed on each back-end server (or node)
5 (*Mangipudi*, col. 4 line 42 and lines 66-67; col. 11 lines 48-50). Contrary to the
6 Office’s argument, each Mangipudi server includes its own individual intelligent
7 agent. Mangipudi requires that to communicate with the intelligent agent there
8 must first be communication with the server. Thus, the intelligent agent is not
9 equivalent to a node manager that “serves as the gatekeeper and proxy for the
10 nodes of the cluster” (*Specification*, p. 3 lines. 1-16 and Fig. 1). Accordingly,
11 Mangipudi does not describe “dynamically determining present members of a
12 load-balancing cluster which includes nodes and a node manager.”

13 Applicant further submits that Mangipudi fails to cure the deficiencies of
14 Gossler. Mangipudi also does not describe “monitoring application-layer
15 availability of one or more members of the cluster, the monitoring being
16 performed by one or more clients outside of the cluster which are
17 communicatively linked to the node manager in the cluster, such that the
18 monitoring is from a client perspective to detect an error that may impact the
19 application-layer availability as it appears to the one or more clients from outside
20 of the cluster.” Mangipudi describes a routing host configured to receive all
21 clients’ requests for sites. Mangipudi also describes that an Adaptive policy
22 engine in communication with the routing host monitors workload and server
23 availability (*Mangipudi*, col. 4 lines 36-45). The routing host must communicate
24 with a separate adaptive policy engine to monitor workload and server availability.
25

1 Thus, the routing host is not equivalent to a client. Mangipudi fails to describe
2 “monitoring application-layer availability of one or more members of the cluster,
3 the monitoring being performed by one or more clients outside of the cluster
4 which are communicatively linked to the node manager in the cluster, such that the
5 monitoring is from a client perspective to detect an error that may impact the
6 application-layer availability as it appears to the one or more clients from outside
7 of the cluster.”

8 Applicant also submits that Gossler and/or Mangipudi does not teach or
9 suggest “that the monitoring is from a client perspective to detect an error that may
10 impact the application-layer availability as it appears to the one or more clients
11 from outside of the cluster”, as recited in claim 1. There is no discussion in
12 Gossler and/or in Mangipudi that the monitoring (of the application-layer
13 availability) is being performed from a client perspective to detect an error that
14 may impact the application-layer availability as it appears to the one or more
15 clients from outside of the cluster.

16 Accordingly, claim 1 is allowable over the Gossler and Mangipudi
17 combination for at least the reasons described above, and Applicant respectfully
18 requests that the §103 rejection be withdrawn.

19
20 Claims 2-13, 15 and 20 are allowable over the Gossler-Mangipudi
21 combination by virtue of their dependency upon allowable claim 1.

22
23 Claims 14 and 16-19 are allowable over the Gossler-Mangipudi
24 combination by virtue of their dependency upon allowable claim 1. Claims 14 and
25

1 16-19 are also allowable over the Gossler-Mangipudi-Luzzi combination because
2 Luzzi does not address the deficiencies of the Gossler-Mangipudi combination as
3 described above in response to the rejection of claim 1.

4
5 **Claim 21** recites a method comprising:

6 monitoring application-layer availability of members of a load-
7 balancing cluster which includes nodes and a node manager, the monitoring
8 being performed by one or more clients outside of the cluster which are
9 communicatively linked to the node manager in the cluster, such that the
10 monitoring is from a client perspective to detect an error that may impact
11 the application-layer availability as it appears to the one or more clients
12 from outside of the cluster; and
13 exocusterly controlling activity state of the members of the cluster.

14 Gossler and/or Mangipudi do not teach or suggest the combination of
15 feature(s) recited in claim 21. For example as described above in response to the
16 rejection of claim 1, Gossler and/or Mangipudi do not teach or suggest
17 “monitoring application-layer availability of members of a load-balancing cluster
18 which includes nodes and a node manager, the monitoring being performed by one
19 or more clients outside of the cluster which are communicatively linked to the
20 node manager in the cluster, such that the monitoring is from a client perspective
21 to detect an error that may impact the application-layer availability as it appears to
22 the one or more clients from outside of the cluster” as recited in claim 21. Further,
23 Gossler and/or Mangipudi do not teach or suggest “exocusterly controlling
24 activity state of the members of the cluster”, as recited in claim 21.

25 Claim 21 has been rejected by the Office for the same reasons as it rejects
claims 1-2 above. Applicant submits claim 21 is allowable over the Gossler-

1 Mangipudi combination for at least the reasons described above in response to the
2 rejection of claims 1-2.

3
4 Claims 22-32, 34 and 37 are allowable over the Gossler-Mangipudi
5 combination by virtue of their dependency upon allowable claim 21.

6
7 Claims 33 and 35-36 are allowable over the Gossler-Mangipudi
8 combination by virtue of their dependency upon allowable claim 21. Claims 33
9 and 35-36 are also allowable over the Gossler-Mangipudi-Luzzi combination
10 because Luzzi does not address the deficiencies of the Gossler-Mangipudi
11 combination as described above in response to the rejection of claim 1.

12
13 Claims 38 recites a tangible computer-readable medium having computer-
14 executable instructions that, when executed by a computer, perform a method
15 comprising:

16
17 dynamically determining present members of a load-balancing
18 cluster which includes nodes and a node manager and an activity state of
19 each member;

20 monitoring application-layer availability of the one or more
21 members of the cluster as such availability is observed by the computer
22 outside of the cluster which is communicatively linked to the node manager
23 in the cluster, such that the monitoring is from a client perspective to detect
24 an error that may impact the application-layer availability as it appears to
25 the computer from outside of the cluster; and

exocusterly controlling the activity state of the members of the
cluster.

24 Gossler and/or Mangipudi do not teach or suggest the combination of
25 feature(s) recited in claim 38. For example as described above in response to the

1 rejection of claim 1, Gossler and/or Mangipudi do not teach or suggest
2 “dynamically determining present members of a load-balancing cluster which
3 includes nodes and a node manager and an activity state of each member” as
4 recited in claim 38. Further, as described above in response to the rejection of
5 claims 1 and 21, Gossler and/or Mangipudi do not teach or suggest “monitoring
6 application-layer availability of the one or more members of the cluster as such
7 availability is observed by the computer outside of the cluster which is
8 communicatively linked to the node manager in the cluster, such that the
9 monitoring is from a client perspective to detect an error that may impact the
10 application-layer availability as it appears to the computer from outside of the
11 cluster”, as recited in claim 38. Still further, as described above in response to the
12 rejection of claim 21, Gossler and/or Mangipudi do not teach or suggest
13 “exocusterly controlling the activity state of the members of the cluster” as recited
14 in claim 38.

15 Claim 38 has been rejected by the Office for the same reasons as it rejects
16 claims 1-2 and 10 above. Applicant submits that claim 38 is allowable over the
17 Gossler-Mangipudi combination for at least the reasons described above in
18 response to the rejection of claims 1-2 and 10.
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1 Claim 39 recites a system comprising:

2 a dynamic cluster-membership determiner configured to exocusterly
3 and dynamically determine present members of a load-balancing cluster
4 which includes nodes and a node manager; and

5 an exocluster monitor configured to monitor application-layer
6 availability of the present members of the cluster, the exocluster monitor
7 distributed across one or more clients outside of the cluster which are
8 communicatively linked to the node manager in the cluster, such that
9 monitoring is from a client perspective to detect an error that may impact
10 the application-layer availability as it appears to the one or more clients
11 from outside of the cluster.

12 Gossler and/or Mangipudi do not teach or suggest the combination of
13 feature(s) recited in claim 39. For example as described above in response to the
14 rejection of claim 1, Gossler and/or Mangipudi do not teach or suggest “a dynamic
15 cluster-membership determiner configured to exocusterly and dynamically
16 determine present members of a load-balancing cluster which includes nodes and a
17 node manager” as recited in claim 39. Further, as described above in response to
18 the rejection of claims 1 and 21, Gossler and/or Mangipudi do not teach or suggest
19 “an exocluster monitor configured to monitor application-layer availability of the
20 present members of the cluster, the exocluster monitor distributed across one or
21 more clients outside of the cluster which are communicatively linked to the node
22 manager in the cluster, such that monitoring is from a client perspective to detect
23 an error that may impact the application-layer availability as it appears to the one
24 or more clients from outside of the cluster”, as recited in claim 39.

25 Claim 39 has been rejected by the Office for the same reasons as it rejects
 claims 1-2, 4, 7, and 10 above. Applicant submits that claim 39 is allowable over
 the Gossler-Mangipudi combination for at least the reasons described above in
 response to the rejection of claims 1-2, 4, 7, and 10.

1 Claims 40-43 are allowable over the Gossler-Mangipudi combination by
2 virtue of their dependency upon allowable claim 39.

3
4 Claims 44-45 are allowable over the Gossler-Mangipudi combination by
5 virtue of their dependency upon allowable claim 39. Claims 44-45 are also
6 allowable over the Gossler-Mangipudi-Luzzi combination because Luzzi does not
7 address the deficiencies of the Gossler-Mangipudi combination as described above
8 in response to the rejection of claim 39.

9
10 Claim 46 recites a system comprising:

11 an exocluster monitor configured to monitor application-layer
12 availability of members of a load-balancing cluster which includes nodes
13 and a node manager, the exocluster monitor distributed across one or more
14 clients outside of the cluster which are communicatively linked to the node
15 manager in the cluster, such that monitoring is from a client perspective to
16 detect an error that may impact the application-layer availability as it
17 appears to the one or more clients from outside of the cluster; and

18 an exocluster controller configured to control an activity state of
19 members of the cluster.

20 Gossler and/or Mangipudi do not teach or suggest the combination of
21 feature(s) recited in claim 46. For example as described above in response to the
22 rejection of claim 1, Gossler and/or Mangipudi do not teach or suggest “an
23 exocluster monitor configured to monitor application-layer availability of
24 members of a load-balancing cluster which includes nodes and a node manager,
25 the exocluster monitor distributed across one or more clients outside of the cluster
which are communicatively linked to the node manager in the cluster, such that

1 monitoring is from a client perspective to detect an error that may impact the
2 application-layer availability as it appears to the one or more clients from outside
3 of the cluster” as recited in claim 46. Further, as described above in response to
4 the rejection of claim 21, Gossler and/or Mangipudi do not teach or suggest “an
5 exocluster controller configured to control an activity state of members of the
6 cluster”, as recited in claim 46.

7 Claim 46 has been rejected by the Office for the same reasons as it rejects
8 claims 1, 3-4, 6-7 and 10 above. Applicant submits that claim 46 is allowable over
9 the Gossler-Mangipudi combination for at least the reasons described above in
10 response to the rejection of claims 1, 3-4, 6-7 and 10.

11
12 Claims 47-51 are allowable over the Gossler-Mangipudi combination by
13 virtue of their dependency upon allowable claim 46.

14
15 Claims 52-53 are allowable over the Gossler-Mangipudi combination by
16 virtue of their dependency upon allowable claim 46. Claims 52-53 are also
17 allowable over the Gossler-Mangipudi-Luzzi combination because Luzzi does not
18 address the deficiencies of the Gossler-Mangipudi combination as described above
19 in response to the rejection of claim 46.
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1 Claim 54 recites a dynamic, active, exocluster monitoring system for
2 monitoring application-layer availability of members of a load-balancing cluster
3 and for controlling an activity state of such members, the monitoring system
4 comprising:

5 cluster which includes nodes and a node manager, the app-monitor
6 distributed across one or more clients outside of the cluster which are
7 communicatively linked to the node manager in the cluster, such that
8 monitoring is from a client perspective to detect an error that may impact
the application-layer availability as it appears to the one or more clients
from outside of the cluster;

9 a cluster-control configured to exoclusterly determine the activity
10 state of the members of the cluster and to exoclusterly control the activity
11 state of the members of the cluster; and

12 a central controller configured to coordinate and control the app-
13 monitor and the cluster-control.

14 Gossler and/or Mangipudi do not teach or suggest the combination of
15 feature(s) recited in claim 54. For example as described above in response to the
16 rejection of claim 1, Gossler and/or Mangipudi do not teach or suggest “cluster
17 which includes nodes and a node manager, the app-monitor distributed across one
18 or more clients outside of the cluster which are communicatively linked to the
19 node manager in the cluster, such that monitoring is from a client perspective to
20 detect an error that may impact the application-layer availability as it appears to
21 the one or more clients from outside of the cluster” as recited in claim 54. Further,
22 as described above in response to the rejection of claim 21, Gossler and/or
23 Mangipudi do not teach or suggest “a cluster-control configured to exoclusterly
24 determine the activity state of the members of the cluster and to exoclusterly
25 control the activity state of the members of the cluster”, as recited in claim 54.
Still further, Gossler and/or Mangipudi do not teach or suggest “a central

1 controller configured to coordinate and control the app-monitor and the cluster-
2 control”, as recited in claim 54.

3 Claim 54 has been rejected by the Office for the same reasons as it rejects
4 claims 1-2 and 10 above. Applicant submits that claim 54 is allowable over the
5 Gossler-Mangipudi combination for at least the reasons described above in
6 response to the rejection of claims 1-2 and 10.

7
8 Claims 55-57 are allowable over the Gossler-Mangipudi combination by
9 virtue of their dependency upon allowable claim 54. Claims 55-57 are also
10 allowable over the Gossler-Mangipudi-Luzzi combination because Luzzi does not
11 address the deficiencies of the Gossler-Mangipudi combination as described above
12 in response to the rejection of claim 54.

13
14 Conclusion

15 Pending claims 1-57 are in condition for allowance and Applicant
16 respectfully requests issuance of the subject application. If any issues remain that
17 preclude issuance of the application, the Examiner is urged to contact the
18 undersigned attorney before issuing a subsequent Action.

19
20 Respectfully Submitted,

21
22 Dated: 1/31/07

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